

**Abstract of the Disclosure**

Different bands (C-band and L-band) are allotted respectively to an upstream optical signal and a downstream optical signal. In a transmission-path optical fiber for Raman amplification, the C-band optical signal is amplified by pumping light from a C-band pumping light source, and the L-band optical signal is amplified by pumping light from an L-band pumping light source. As a result of this configuration, the optical signals are Raman-amplified through backward pumping in both upstream and downstream directions, whereby negative effects, which could be exerted on the optical signals by forward pumping, can be avoided.